Market Analysis
Program (MAP)

Industry Sector Markets
1991-1996

State and Local Government Sector

INPUT®

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STATE AND LOCAL GOVERNMENT SECTOR

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I

Introduction

I

Introduction

A

Purpose and Methodology

1. Purpose

The objectives of this Market Analysis Program industry sector report are to:

- Introduce the reader to the state and local government sector structure and demographics

- Identify the business issues and trends that are driving the use of information services in the sector

- Discuss how state and local government organizations use information services, and the issues facing their information systems organizations

- Discuss the information services market within the state and local government sector, including market sizing and the factors driving market demand for each delivery mode

- Describe the competitive environment and profile leading information services vendors that sell to the state and local government sector

2. Methodology

This report is based on data gathered during 1990 and 1991 as part of INPUT's ongoing market analysis program. Trends, market size, and growth rates are based primarily upon in-depth interviews with state and local government users and the IS vendors serving this sector. INPUT maintains ongoing relationships with, and a data base of, all users and vendors that it interviews. Interviewees for the research portion of this report were selected from this data base of contacts.

To prepare this report, INPUT interviewed information systems executives in large and small state and local governments. Data obtained from the interviews was used as a base to analyze spending levels and patterns, and trends in the applications of technology. Data gathered from interviews was augmented by budget data received from state agencies.

In addition to interviews with state and local government information systems executives, INPUT interviewed leading vendors in the sector. Vendor interviews were conducted to develop an understanding of vendor issues and opportunities.

In addition to data gathered from vendors and users, extensive use was made of INPUT's corporate library. The resources of this library include several on-line periodical data bases, subscriptions to over 50 computer and general business periodicals, continually updated files on over 3,000 information service vendors, and up-to-date U.S. Department of Commerce publications on industry and employment statistics.

B

Industry Structure

The 1991 United States Statistical Abstract identifies more than 83,200 state and local governments extant as of the end of 1987. (The federal government gathers data only once every five years, for years ending with a two or a seven.) Of the total, there are an estimated 83,186 local government entities. Local government entities can be subdivided as follows:

- 3,042   County
- 19,200   Municipal
- 16,691   Township & Town
- 14,721   School District
- 29, 532   Special District

When considering the needs and requirements for information services, it is necessary to note the following:

- INPUT analyzes the education market (school districts) as a separate vertical sector. The number of school districts therefore needs to be subtracted from the total.

- Of the total counties (3,042), 398 of them (13%) have a population of more than 100,000. At the other end of the spectrum, 23% (696) of the counties have populations of less than 10,000 people.

- Of the total municipalities (19,200), only 5% (1,029) have populations of more than 25,000. However, these represent approximately 67% of this population.

- Two percent of towns and townships (278) have populations of more than 25,000. However, unlike municipalities, 60% of the population is in towns and townships of less than 25,000.

After considering factors such as uniqueness of needs and areas of greatest opportunity, INPUT believes that the state and local government market can be divided into two major groups.

- Approximately 1,200 entities are the state governments and local governments (local, county, and municipal) that represent the majority of the population.

- An additional group is composed of the special districts that provide service to one or more of the local government areas.

This report focuses on these entities as the source of greatest opportunity.

C

Organization and Contents

Following this introduction, the report is organized into five chapters and two appendixes.

- Chapter II—Trends, Issues, and Events—describes the business issues and trends that are driving the use of information services within the sector.

- Chapter III—Information Systems Environment—provides an overview of the basic business processes in the state and local government sector and their supporting information systems applications. The chapter considers how information is used, the impact of new technologies on the use of information systems, and issues related to budgets and organizations.

- Chapter IV—Information Services Market—provides a forecast for information services in the state and local government markets. Following the forecast for the sector, the forecast is analyzed by delivery mode.

- Chapter V—Competitive Environment—discusses the competitive environment within the state and local government sector. This chapter provides a brief profile of several vendors that represent major trends in the sector.

- Chapter VI—Conclusions and Recommendations—provides a summary of major areas of opportunity resulting from the research, and recommendations to vendors entering or expanding into the state and local government sector.

In addition, there are two appendixes:

- Appendix A presents industry-specific definitions used throughout the report.

- Appendix B presents the Forecast Data Base and Forecast Reconciliation. The forecast data base contains yearly (1991-1996) forecasts of user expenditures by delivery mode for the state and local government sector. The forecast reconciliation compares this report's forecast with the forecast provided in INPUT's earlier state and local government report and explains the reasons for any major differences.

II

Trends, Issues, and Events

II

Trends, Issues, and Events

A

Trends

State governments, as well as a growing number of local governments, are caught in a bind. Until very recently, when local governments needed assistance, they obtained funds from their respective state governments. States that had difficulty received assistance from the federal government.

The process worked well until the federal government began to accept that its cash drawer is not a bottomless pit. Though no comprehensive data has been published by the federal government since 1988, analysis of data covering the years 1980 through 1987 provides clues about reasons for the difficulties that many states experience today.

- Between 1980 and 1987, long-term debt of state and local governments increased by 114%.

- Between 1986 and 1987 alone, the amount of *unguaranteed* long-term debt of state governments increased by 9%.

- The amount of long-term debt of county governments increased by 17% between 1986 and 1987.

- The amount of long-term debt of city governments increased by 29% between 1986 and 1987.

As was common in private companies, many state and local governments incurred long-term debt to meet short-term needs. With the expectation of continued growth, they planned to pay off current debt with future funds. They also sought financial relief from the next level of government. As many have since found, the economy did not continue to grow. It slowed and entered a recession. Funds were not available from state or federal sources.

In the past few years, the cost to service debt increased by more than 70% for some states and local governments. At the same time, general and administrative expenses in some states increased by 70% to support growing demands for service.

The net result for many state and local governments has been the creation conflicting pressures.

- Federal budget limitations have caused a shifting of responsibility from the federal sector to states. At the same time, state budget limitations have significantly reduced states' ability to assist local governments.

- While there has been pressure to reduce taxes and government costs, there has not been an end to demands for increased government services. With the continuing demand for services, there is demand for bigger and faster systems.

Government executives generally want to provide more cost-effective methods of delivering services. Theirs is a delicate balancing job between declining funding and growing demands. Many recognize that information systems offer alternatives for cost effectiveness, but are able to provide only limited funding to information systems departments.

At the same time, many information systems executives are frustrated and dissatisfied about being unable to apply technology that they know could result in significant improvement of overall cost effectiveness.

A number of information service vendors have learned to deal with the needs, politics, divided management responsibilities, methods of funding and budgeting, and staff problems that can be encountered in the sector. However, finding that expected funding will not be forthcoming is not an unusual situation. Marketing to this sector requires analysis of the factors involved in each sales situation.

During the last few years, there has been an increase in commitments by state and local governments that require new IS capabilities. Information services, particularly professional services and systems integration, will grow rapidly during the next five years as a result. Key trends include those summarized in Exhibit II-1.

EXHIBIT II-1

Industry Trends
State and Local Governments

- Increasing budget pressures

- Increasing IS solution demand

- Continuing mainframe demand

- Connectivity/interoperability

- Public data dissemination/access

- Point-of-presence processing

- Paper reduction

- Reduced funding continues to be a major consideration for both users and vendors. For vendors, the situation is not dissimilar to that in the private sector, in which many companies have delayed funding of new projects due to lack of capital. The result has been an increasing focus on shorter and less costly projects that have demonstrable short-term payback.

- The need for short-term payback can be a critical factor. Projects that can provide a clearly identifiable, early return may frequently receive funding where other, longer term projects may not.

- Increasing focus on information systems solutions can be both positive and negative. On the positive side, vendors that can demonstrate positive results can find greater opportunities. On the negative side, many state and local (particularly local) government executives do not fully appreciate the high costs associated with technology solutions. This makes the sales job considerably more difficult.

- Though growth of minicomputers and PCs continues, growth of large mainframe systems has not declined significantly. Large mainframe systems are needed to support data bases that continue to grow, and new applications such as electronic imaging and geographic information systems (GIS).

- The importance of connectivity and interoperability is really only beginning to be felt in state and local governments. As with the federal government, there is need for connectivity between a wide variety of hardware types. To date, state and local governments have focused on LAN connectivity, but demand is growing for comprehensive intra- and interdepartmental networks that will connect to large data bases.

- Public access to information and the ability to disseminate services electronically is a rapidly growing trend in state governments. Direct interaction with the public through on-line systems to request and receive information and benefits is seen by many as a service that will only grow in importance.

- With direct government-to-public connectivity being established, many are placing increased attention on performing processing right at the time of the request. On-line systems will receive routine requests for information or service, process the request, and disseminate the results without the need for processing forms through central facilities.

- Paper reduction and the corresponding reduction in personnel continues to be high priority.

A consistent theme of current trends is to move from older, manual systems directly to on-line systems that connect directly to the public. By establishing this type of connectivity, state governments, in particular, believe that they can speed processing time, have greater control, and eliminate much of the paperwork.

In order for the on-line services to be effective however, government entities need data base systems that are integrated across department lines and that have very strict controls. A major concern of many is that on-line benefits access could actually increase the rate of misuse due to the speed of delivery.

B

Major Issues for Information Systems (IS) Managers

Major issues for IS department managers in the state and local government sector are summarized in Exhibit II-2.

- Once resistant to the use of technology, executives in this sector increasingly expect to fulfill commitments through the use of information technology. However, they are frequently unable to provide the funding for IS projects.

EXHIBIT II-2

Key Issues
IS Department Managers

- Growing user expectations

- Increasingly complex solutions

- Technology planning

- Productivity and backlogs

- Integration

- Budgeting

- Unable to provide funding, many executives try to bypass the IS department to find packaged solutions. To forestall the move to unilateral actions, IS management must participate in activities involved with solutions to commitments. Vendors providing services to IS must keep track of the meetings and activities of organizations and officials—in which IS has not participated—that could result in decisions for new projects.

- System solutions are increasingly complex. As recently as ten years ago, systems were developed to meet the specific needs of a department or work group within a department. Users and officials now demand on-line, integrated systems for human resources/social service, taxes, courts, criminal justice, and public safety. System solutions now span multiple departments and even agencies. They need to integrate a wide variety of functions across a wide geographic area.

- Few state or local governments have comprehensive plans for the use of technology. Many require an annual technology plan, but the plan is generally for a single department. Few state or local governments have developed, and act upon, comprehensive plans to address needs over the next five years.

- Productivity and backlogs remain major issues of IS management in this sector. IS management must increase the participation of management is assessing priorities and, if possible, must encourage the use of outside IS resources to fulfill requirements.

- Many IS departments are exploring the use of 4GL and CASE tools to obtain relief. These capabilities may aid in the future, but the required investment in training and learning may exacerbate problems in the near term. Involvement by management in setting priorities and in considering application packages to meet needs is also necessary.

- Although the need for integration of data, technology, and applications is only beginning to be fully recognized, it is already an issue in this sector. One vendor noted that the need for integration is overshadowed in many cases by the demand to install standalone application systems and convert data to new DBMSs.

  - In some cases, existing and new IS needs could be met through integration rather than through development of standalone systems.

  - IS management and vendors must be alert to opportunities to meet needs through integration.

- The budgeting process in many state and local governments is an inhibitor to technology planning. Many follow the process of incrementing current expenses by nominal amounts to reflect increased operating expenses. Major project expenses are developed independent of the annual planning process and are frequently included in overall department budgets.

Major IS department issues are not expected to change significantly over the next several years. Funding will remain a problem. Information systems managers will continue to have to respond to legislated requirements and will have only limited ability to develop and execute comprehensive information technology plans.

C

Major Issues for End Users

Major end user issues were researched through discussions with IS managers, vendors and end users in state and local governments. Vendors should consider the issues identified in Exhibit II-3 in planning their objectives for success in this sector.

The users' role in system activities is a major issue because of the increasing complexity of systems, the growing demands for service, and the backlog that confronts IS.

Because of these obstacles, users have been seeking ways to circumvent IS. Many report a growing use of PC-based relational data bases and 4GLs to meet their system needs. Vendors should anticipate more participation by users in evaluating, selecting, and installing their products. Interaction with users will become essential to successful vendors.

EXHIBIT II-3

Key Issues
Information Systems Users

- Systems activity role

- Support for information systems

- Connectivity

- Data management

Apparent to some users is the need to obtain support for training from IS or from vendors, to help them specify requirements and use application systems more effectively. IS management and information services vendors must seek resources to adequately train and support users.

Connectivity is a major issue for end users, since there are many needs that involve access by legislators, city planners, controllers, or program offices to financial, human resource, benefits and services, and other data bases. Increasingly, vendors serving this sector must have network expertise.

The need to improve access to many data bases makes data management a major issue. Some users, as well as IS managers, are now exploring relational technology. Vendors must be prepared to aid in the upgrade of data management capabilities.

Pressing issues that face users in this sector are making it mandatory for them to consider increasing training for the use of IS. Means of addressing the issues of training are being considered at all levels of state and local government. Vendors interested in this sector should explore services that could meet this need in order to build relationships and to service the needs of prospective information services clients.

D

Events

A number of events in state and local governments during late 1990 and early 1991 attest to the difficulties faced by both IS management and state and local officials. These events also serve as strong indicators of the types of information systems needed to meet requirements for the future.

- The state of California had to increases fees and taxes in numerous areas to address a potential shortfall of nearly $14 billion.

- At the same time that California was addressing ways to increase revenues, several large departments continued progress on an interdepartmental electronic imaging system. When complete, the system will be accessible by several departments for benefits planning and coordination.

- The city of Bridgeport, Connecticut filed for bankruptcy. There are indications that numerous other cities are in similar financial difficulty.

- Geographic information systems (GIS) can be found at nearly every level in many states and cities. Small cities are using IBM and Macintosh GISs for emergency response and planning. Others use them for planning utility services. Still others are applying GISs for environmental planning purposes. Many states are using GISs to map entire statewide transportation systems.

- Telecommunications networks continue to be a key focus for many states, such as Kansas, which is building a statewide network to link college and university campuses.

These events serve as an example that state and local governments (states in particular) are interested in applying technology, but state and local governments are faced with increasingly difficult financial choices.

III

Information Systems
Environment

III

Information Systems Environment

A

Applications

In the more than 83,000 state and local government entities, there are over 200,000 equipment sites, and a wide range of information systems. Systems range from archaic equipment or early PCs in small municipality, township, and county offices, to sophisticated, on-line mainframes and supercomputers using advanced systems and software in large city, state, and agency offices.

Major applications in state and local governments can be grouped into several general categories. Applications used in executive, legislative, and general government include the following:

- Government personnel
- Applicant tracking
- Employee management and compensation
- Government payroll
- Purchasing
- Inventory management
- Voter registration
- Election returns
- Integrated municipal systems

On the state and local government level, the justice system includes traffic courts, district courts, family courts, superior courts, and many other types of courts.

Public order and safety includes state police and highway patrols, city police departments and sheriffs' offices, fire protection, legal counsel and protection (such as public defenders' and prosecutors' offices), and correctional institutions.

Applications used by the justice system and public order and safety organizations include the following:

- Remittance control for courts
- Correctional institution control
- Information management systems for law enforcement
- Computer-aided dispatch for public safety
- Police systems
- Crime analysis
- Crime reporting and criminal information
- Traffic ticketing and enforcement
- Equipment control
- Fire systems
- Automatic vehicle locating systems

Public finance, taxation, and monetary policy covers organizations primarily engaged in financial administration and taxation, such as budget agencies, controllers' offices, property tax assessors' offices, state tax commissions, tax departments, and treasurers' offices.

Applications used in public finance, taxation, and monetary policy include the following:

- Tax collection
- Budgetary accounting
- Central cashiering
- Fund accounting management information systems
- Financial control
- Fiscal management
- Government costing
- Municipal control systems
- On-line appraisal and statistical information
- Real property tax
- Tax management
- Revenue data collection
- Treasurers' general ledger and warrant reconciliation

Administration of human resources includes the administration of educational programs, public health programs, and social, manpower and income maintenance programs. Within this group are county supervisors of education, state education departments, teacher certification bureaus, health statistics centers, immunization program administration, maternity medical assistance program administration, unemployment insurance offices, workman's compensation offices, and more.

Administration of environmental quality and housing programs includes environmental programs and housing and urban development programs. Within this group are environmental protection agencies, environmental

quality and control agencies, conservation agencies, land management agencies, building standards agencies, housing agencies, community development agencies, county development agencies, urban planning commissions, and zoning boards and commissions.

Administration of economic programs includes administration of general economic programs; regulation and administration of transportation programs; regulation and administration of communication, electric, gas, and other utilities; and regulation, licensing, and inspection of miscellaneous commercial sectors.

Although this group includes many federal agencies, it also includes many licensing and inspection offices, port authorities and districts, railroad and warehouse commissions, transit systems and authorities, transportation departments, irrigation districts, utilities licensing and inspection, alcoholic beverage control boards, labor management negotiation boards, retail trade licensing and permits, rent control agencies, work safety administration, and others.

Applications developed for public administration are abundant. Listed below are a few:

- Financial accounting systems for education
- Welfare and public assistance control and licensing
- Animal control and licensing
- Building permit
- Business license
- Land parcel data base
- Building and zoning
- Highway impact model
- Housing authority tenant accounting
- Truck trailer scale system
- Title system

B

Application Development Trends

As might be expected, state and local government IS organizations report a high rate of development backlog. There is little to suggest that the situation will ease. The growth of backlogs results from less allocation of internal resources for developing systems.

As shown in Exhibit III-1, the percentage of resources available to develop new systems remains low.

EXHIBIT III-1

**Internal Resource Allocation
Application Development**

Over the past year, there has been a slight shift from enhancing to maintaining existing applications. The shift does not appear to be major, but it is a further indication of this sector's inability to make major investments. The lack of change in the "Developing New" category reflects both the continuing need to seek outside development assistance and, by not growing, the difficulty of obtaining new system funding.

INPUT's research indicates that the state and local government sector relies on external resources for systems development approximately 22% of the time. However, this figure must be viewed cautiously.

• For state governments, this figure does not include the acquisition of systems from other states. State governments increasingly are looking at methods of adapting existing solutions.

• This does not include resources that are funded through department programs. Spending for new development, particularly at the state level, frequently does not appear in information systems budgets. Departments include information systems expenditures in a program spending budget rather than identifying them separately. In state governments, this is an accepted method of obtaining funding for information systems projects.

• INPUT estimates that if all spending—including spending in program budgets—was identified, the percent allocated to external purchase would be closer to 35-40%.

Overall, the types of external resources utilized by this sector are not very different from those of other sectors. Custom development is used only slightly more than packaged software. However, professional service and systems integration work that is not counted in information systems budgets would shift the percentage more toward custom development.

The state and local government sector is also interested in productivity enhancing development tools. However, the cost of these tools is generally beyond the reach of most local governments. Vendors providing services to local governments will have greater success in tailoring systems that already exist, rather than creating new, complex systems. Creating a data base system using DPS III will result in greater acceptance than a proposal to develop a complex mainframe system.

Interests of state and large municipal governments center around products such as CASE tools, relational data bases, and 4GLs.

There is growing interest in SQL as a means of accessing integrated data bases. Although integrated data bases are not yet common, there is a growing need to keep track of all benefits received by citizens. As networks become integrated, there will be more need for SQL-type languages to extract and analyze data.

C

Impact of New Technologies

In early 1991, INPUT conducted research into the importance of a number of technologies (or approaches to using technology) for development and systems integration projects in a number of industries. State government was one of the key industries. Although the results are applicable only to state governments, they are strong indicators of the needs of state and local governments.

Exhibit III-2 summarizes ratings of the importance of technologies or approaches to using technology in state governments.

As indicated by the current ratings, state governments have the greatest interest in technologies that permit integration of applications with users. The three highest rated technologies are for data bases and networking, all oriented to providing users with greater access to data. Over the next three years, they will have increasing interest in technologies that provide connectivity between the wide variety of installed systems.

EXHIBIT III-2

Technology Importance Rating
State Governments

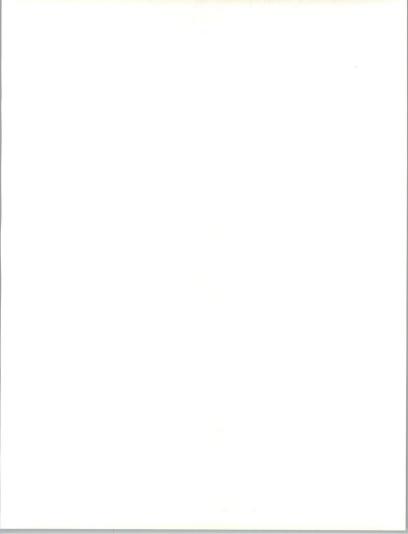| Technology	Current	Next Three Years
Network Integration	3.9	4.4
Local-Area Networks	3.5	4.3
Relational Data Bases	3.4	4.3
CASE	3.1	4.4
Distributed Systems	3.1	3.9
Packet Switch Networks	3.0	3.9
Open Systems	2.8	4.4
Geographic Information Systems	2.6	3.9
System/Network Security	2.6	3.3
Client/Server Architecture	2.5	4.0
Electronic Imaging	2.1	3.6
UNIX	2.0	3.1
On-line Transaction Processing	1.9	2.6
Artificial Intelligence	1.6	2.6

Rating

Rating: 1 = Not Important, 5 = Very High Importance

While state governments rate their interest in most technologies as above average and growing, there are two technologyies in which there appears to be little interest, at least at the moment.

- Respondents do not perceive great value in artificial intelligence (AI). One respondent indicated that AI could be of benefit in systems to determine benefits eligibility, but is unsure how AI would really differ from structured processes in existing systems.

The key point to note is that there is a general uncertainty about how AI would be applied in state governments. Whether this hesitancy stems from lack of knowledge about how AI works or if it is due to the cost of implementation in relation to the benefits is not clear.

- INPUT believes that AI could provide benefits to state government applications, but that specific applications will need to be demonstrated before it will be accepted.

- On-line transaction processing is not a major requirement in state governments and is not expected to become so in the near term. States do not have the demand for continuous availability found in private sector industries. This will change as states develop electronic benefits transfer (EBT) systems. These systems require reliability and up-time similar to ATM networks.

Overall, state governments have a high degree of interest in technologies that provide greater connectivity options, but are generally slow to apply technology due to funding restrictions.

D

IS Issues

Analysis of data about state government spending patterns provides insight into a number of major issues and driving forces in the state and local government sector.

- Nearly 20% of all state employees perform functions directly related to information processing. This does not include administrative staff (e.g., secretarial) performance of routine office functions.

- On average, states spend 1% of their budgets for information processing resources. However, it should be noted that as much as 15-20% of spending is internal transfer—one state department buying services from another department. This effectively reduces the amount actually spent for purchased services.

Many local governments spend less. This differs considerably from the private industry sector, where spending can average 2-4% of revenues in many organizations and 5-6% or more in others. The difference in spending levels indicates significant opportunity to improve operations through use of information technology.

- Between 1987 and 1988, the number of applications for which federal assistance was available declined by 30%. This followed four years during which the number of applications receiving federal assistance grew by 75%. Over the same two-year period, federal assistance for operational requirements declined by 60%.

Although the data is not directly applicable to many local governments, it is indicative of a number of major issues that face both state and local governments. The issues are summarized in Exhibit III-3.

EXHIBIT III-3

Major IS Issues
State and Local Government

- Budgetary constraints

- Increasing IS solution demand

- Organizational issues

- Personnel availability

- Lack of plans

State and local governments face severe and growing budget constraints. Local governments have increasingly looked to the state for assistance, while state governments seek federal assistance. With federal funds diminishing, funds available to fulfill local needs are also diminishing. Both state and local governments are increasingly on their own. Coupled with this is growing public resistance to raising taxes.

State and local government IS resource allocation decisions are frequently affected—sometimes severely—by legislative decisions. Decisions to deliver services differently; raise or lower sales, property, or other taxes; or otherwise alter the way business is conducted directly impact the development and operation of systems.

With many changes mandated, state and local governments often have few resources available for new development. Therefore vendors, operating with limited sales and marketing budgets, must differentiate between agencies that have both the needs and financial resources to fill them, and those with only needs.

Solutions are increasingly complex. With many (benefits) programs interrelated, there is a growing need for complex systems that will provide information from multiple programs to aid in making sound decisions. Integrated data base systems are needed to provide the breadth of information necessary.

Low productivity and growing backlogs are also driving the demand for greater use of automation. From E-mail systems to widely accessible data bases, systems are needed to reduce the volumes of paperwork. Professional services are needed to design and develop these systems.

State and local governments are increasing their acceptance of technology as a method of overcoming many of these problems. Major improvements in technologies such as imaging and improved connectivity are more often seen as methods to improve productivity, reduce backlogs, and provide better service to the public.

Driving forces in the use of IS in this sector are shown in Exhibit III-4.

EXHIBIT III-4

State and Local Government Driving Forces

- Growing expectations

- Reduced funding

- Complex solutions

- Productivity and backlogs

- Technology integration

- Legislated requirements

With the acceptance of technology, there are growing expectations. However, there is also a growing sense of frustration.

- State and local governments increasingly acknowledge the need for technology, such as imaging and networking, and services such as electronic mail. However, efforts to capitalize on the new technologies are inhibited by lack of staff and funds. Modernization is also inhibited by the continued use of antiquated systems that cannot be easily upgraded.

- Lack of staff, lack of funds, and the continued use of antiquated systems are driving state and local governments to use outside resources. Professional services for consulting, design, and programming account for an estimated 40% of purchased information systems services.

Reduction in funding and constraints on the allocation of available funding are major issues. In addition to the rising costs of personnel, equipment, and supplies that are encountered in other sectors, government offices have stringent and controlled budgeting and organizational procedures that encumber IS departments.

- These constraints have encouraged users and executives to find means of circumventing procedures in order to address information system needs. Vendors need to understand both the constraints and the alternatives available to make their products and services available.

- Systems integration contracts have been utilized to address needs, to avoid budgeting procedures and constraints.

- PCs are being employed to run small systems and for analysis and word processing. However, while meeting short-term departmental needs, the continued proliferation of PCs contributes to the need for integration.

Users increasingly need solutions that will permit the integration of data across departments. The need for shared data is a key contributor to the demand for more complex systems.

- Fire, police, and medical response teams must have access to data from geographic, hazardous waste, and criminal data bases. The data must be accurate and immediately available.

- Departments responsible for providing social service benefits must have access to data about other benefits such as health services. Benefits eligibility and use are becoming increasingly complex. Growing demand and abuses necessitate up-to-date data about availability and use.

Productivity and backlogs are a more critical issue for IS management in this sector than in other sectors. IS managers suggest that contributing to

the backlog are state and local governments' desire for short-term solutions, which leads to requests for upgrades and improvements.

The need to integrate data, technology, and applications is found in the state and local government sector, as well as in other sectors.

- In state and large city governments, there is growing interest in data base technology and the use of relational data management.

- Even small municipalities are interested in the integration of applications and the use of data management techniques that will permit access to the growing amount of stored information. Many see PC-based relational data base software as a solution to meeting many needs.

Compounding funding, budget, and staff constraints are growing legislated demands. Legislation to provide or alter benefits or operating procedures continually impacts schedules and resource allocation.

- Legislative demands must be met, even if other projects must be delayed or stopped.

- Legislation frequently addresses short-term fixes. This results in the reallocation of resources away from developing innovative solutions to change existing systems and processes.

To take advantage of these circumstances, vendors need to provide timely, flexible, and modular solutions.

E

Organization and Budget

Information systems organizations in state and local governments are not dissimilar to the IS organizations found in large industrial companies.

Many states have centralized data centers, but systems development and maintenance is most frequently performed by individual departments similar to divisions of a large corporation. Few states have centralized systems development functions. The situation is similar in local governments, but there is a higher incidence of centralized software development organizations.

Since each department is autonomous, marketing is difficult—particularly for applications or processes that cross departmental lines. In some cases, vendors may find themselves in a position of negotiating with one department on behalf of another.

As shown in Exhibit III-5, there has been little change over the past year in the distribution of expenses among several major categories.

EXHIBIT III-5

IS Budget Distribution and Growth

Category	1989 Budget	1990 Budget	1989-1990 Change (Percent)
Personnel	40	38	-3
Hardware	25	24	-4
Communications	7	8	14
Purchased Services	21	23	10
Other	7	7	-
Total Budget	100	100	

Both personnel and hardware showed a slight downward shift over the past year. The decline is more a reflection of fiscal problems than a major shift in needs or attitudes. INPUT does expect the percent for communications to remain at a somewhat higher level. However, several points should be noted:

• There has been a general upward trend in spending for hardware. INPUT expects this trend to continue, after near-term fiscal problems have been resolved. Though purchases for mainframe hardware are important, there has been more emphasis on spending for midrange and office systems, and for local-area networks.

• There is growing pressure to reduce expenditures for personnel. If current fiscal problems do result in staff reductions, there is at least a reasonable possibility that some will not be replaced. Since the workload is not going to go be reduced, staff reductions can result in additional vendor opportunities.

• Declining expenditures for personnel and increasing demands for systems are continuing to drive demand for professional services and systems integration.
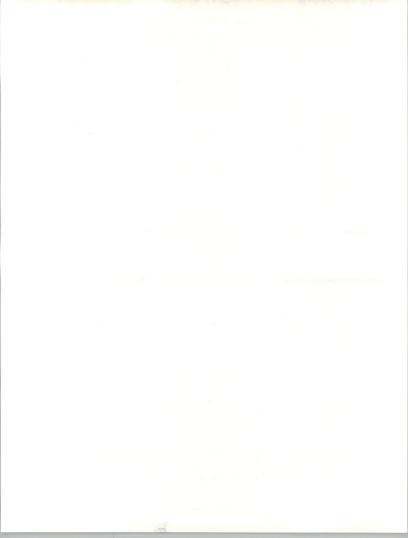
State information systems managers indicate that there is growing emphasis on broad-based, integrated solutions. Use of traditional and relational data base systems is growing, and there is growing emphasis on the integration of traditional data systems with electronic imaging systems. With an estimated 40% of department personnel directly involved in processing forms, there is a great need to reduce paperwork.

A variety of factors impact the ability of state and local information systems managers to implement technology solutions. Key reasons are shown in Exhibit III-6.

EXHIBIT III-6

Key Factors Affecting IS Budgets

- Revenues/funding

- Technology costs

- Personnel costs

- Management understanding

- Management commitment

- Funds for information systems technology must come from a reduced source of funds. State and local governments that relied heavily on federal and state governments as a source of funds must increasingly operate with locally generated revenues.

- The reduced funding has driven information systems managers to address requirements on a project-by-project basis. Projects frequently result from crisis rather than long-range planning.

- The cost of technology remains a major problem for most state and local governments. Though there has been a continued shift from lease to purchase of equipment over the past several years, having to justify the allocation of scarce funds makes the acquisition process lengthy and difficult.

- Costs of personnel are continuing to rise, and state and local governments are less able to attract the qualified personnel necessary to develop and maintain complex systems. The lack of skills is a key driver of the continuing use of outside professional services.

- Although understanding of technology is growing, there is a continuing need to educate senior state and local officials about its value. Politically oriented senior officials frequently have difficulty understanding the value of faster machines or higher-speed circuits. To succeed, vendors must show skill in managing this environment.

- Ongoing commitment to making major improvements is also a significant stumbling block for information systems managers. Senior state and local officials are often politically motivated. Even those who understand the value of technology may vacillate on decisions, waiting for political consensus.

Although the factors that affect the information systems budget can be significant, growing realization that improvements must be made and that the application of technology is the only viable solution drives continued investment.

F
Objectives and Plans

IS management objectives, shown in Exhibit III-7, reflect concerns about growing backlogs, inadequate hardware, and budget constraints.

EXHIBIT III-7

Information Systems Management Objectives

- Upgrade hardware

- Increase software development capabilities

- Increase project management capabilities

- Enhance networks

- Increase strategic planning

- Upgrading hardware remains a key requirement for many state and local governments. Though much of the hardware currently installed continues to meet existing needs, managers recognize that complex systems and new technologies—such as electronic imaging or electronic benefits transfer—cannot be supported by existing hardware.

- Nearly all state and local governments need to increase their software development skills. Currently, only an estimated 17% of their training budgets are for applications programmers. Nearly 50% is used for training user department staff. For vendors of training services, focus should be on the user. However, they should also note that much of the training results from system integration or development efforts, suggesting that alliances and partnerships could strengthen a vendor's position.

- Increasing project management skills is imperative. As state and local governments (particularly state) look outside for solutions to complex system problems, they are in greater need of individuals who can manage vendors.

- Major network enhancements are necessary in most states, due to increasing efforts to implement integrated processing platforms. To achieve economies of scale of large systems, there is growing need to provide high-speed, high-quality delivery highways. In addition, state and local governments recognize the need to integrate their local-area networks.

- Efforts to develop statewide plans have been growing. Nearly 80% of states indicate that they have a statewide information systems plan, but few have plans that provide for the integration of data across department lines. Comprehensive plans will be necessary before major systems can be integrated. Significant integration efforts will be needed for new technologies such as EBT to be effective.

Overall, plans will focus increasingly on integrating existing and developing new integrated systems to share data across strict organizational lines. The new complex systems structure will require more help from professional services firms, particularly those that have a predefined approach that can be used to replicate tailored systems across states. These tailored systems will help to keep costs down while meeting customer needs.

IS spending in state and local governments is closely aligned with the overall pattern of government expenditures. Exhibit III-8 shows data about state and local government expenditure patterns. (Note that this data is the most current data available from the U.S. Census Department.) There are several points to note.

- Public welfare and education remain the largest areas of expenditure. This is not expected to change.

- In state governments, the costs for government administration increased 70% between 1985 and 1987. At the state level, interest on general debt increased by 76% during the same period.

EXHIBIT III-8

State and Local Government Expenditures by Government Function

Government Function	State Government Expenditures, 1987 ($ Millions)	City Government Expenditures, 1987 ($ Millions)
Highways	31,488	21,711
Public Welfare	61,123	18,967
Health and Hospitals	27,202	29,769
Police Protection	3,636	21,049
Local Fire Protection	--	10,910
Natural Resources	9,230	11,486
Sanitation and Sewage	406	20,918
Housing and Community Development	1,308	10,458
Government Administration	18,583	23,233
Interest on General Debt	19,382	30,719
Utility Expenditures	5,971	59,537
Insurance Trust Expenditures	43,316	7,499
Education	61,647	165,010
Other	23,799	31,162

- The trends and increases suggest that significant emphasis needs to be placed on reducing administrative costs and managing financial resources. Vendors that can use advanced technology to achieve these goals will have a competitive advantage in pursuing new business.

IV

Information Services Market

IV

Information Services Market

A
Overview

INPUT forecasts that user expenditures for information services in state and local government will amount to $5 billion in 1991, as shown in Exhibit IV-1. This represents an estimated growth of 14% over 1990. The compound annual growth rate is expected to be 16% for the next five years, resulting in a market of over $10.5 billion by 1996.

EXHIBIT IV-1

Market Forecast
State and Local Government, 1991-1996

The 16% growth rate reflects the following factors:

- The growth rate is not expected to exceed 12-14% for the next couple of years, as states and cities address growing fiscal problems.

- Near the end of the forecast period, the growth rate will return to the 18-19% range.

- There will be increasing focus on on-line information systems to permit faster data collection and analysis and to replace manual files.

- There will be increased focus on the integration of antiquated applications to improve service delivery and reduce overload costs.

- There is growing recognition of the need to automate office processes.

- There is recognition of the value and new and creative application of technology.

B
Delivery Mode Analysis

Although state and local governments are faced with numerous fiscal difficulties, the market has a stable foundation and is expected to remain strong. Analysis of the delivery modes reveals areas of particular strength (Exhibit IV-2).
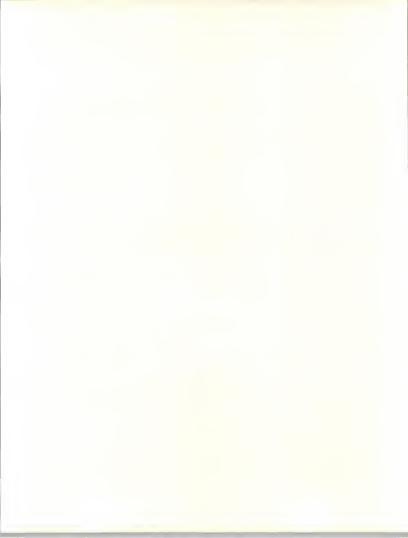
- Network services will remain strong due to the growing need for applications such as electronic mail and EDI. Once a contributor to the growth of this delivery mode, interest in packet switch networks has waned steadily as attention shifts to large, LAN-type networks.

- The need for comprehensive, integrated system solutions is growing in states and in larger metropolitan areas. Systems in states and municipalities are old and fragmented. Growing public service demands and a shifting of public service burdens from federal to state control are increasing the need for more comprehensive systems. Professional services to design and develop complete systems represent 53% ($336 million) of the expenditures for systems integration services.

- With a growing shortage of staff, state and local governments are turning more often to outside services to manage the operation of their systems. At the state level, management of health claims processing continues to be the major requirement. At the local level, increasing attention is being given to processors that can provide full service.

EXHIBIT IV-2

Market Forecast by Delivery Mode
State and Local Government, 1991-1996

Delivery Mode	1991	1996	CAGR (Percent)
Processing Services	288	507	12
Turnkey Systems	167	284	11
Applications Software	143	293	15
Systems Operations	1,052	2,358	18
Systems Integration	639	1,639	21
Professional Services	2,638	5,167	14
Network Services	92	248	22

User Expenditures ($ Millions)

Legend: ▨ 1991 ▨ 1996

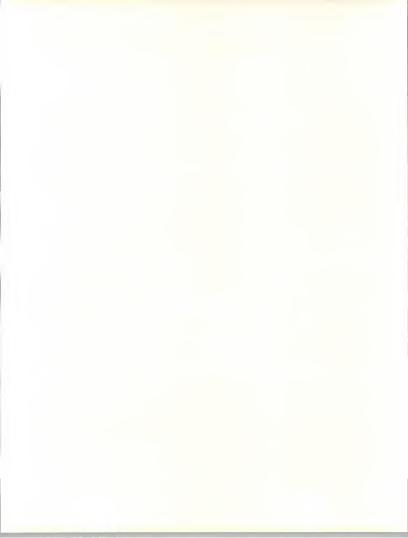- Professional services remains strong and is growing as governments consider outside services for system design and development. In many states, system design and programming services can represent as much as 50% of information systems contracted services.

Exhibit IV-3 provides a summary of the forecast of industry-specific application software by platform size. There are several points to note.

EXHIBIT IV-3

State and Local Government
Industry-Specific Applications Software Forecast by Hardware Platform

CAGR (Percent)

Mainframe: 55 (1991), 77 (1996) — 7

Minicomputer: 31 (1991), 57 (1996) — 13

Workstation/PC: 57 (1991), 159 (1996) — 23

User Expenditures ($ Millions)

- The percentage of industry-specific software for mainframes is expected to decline, as more software moves outward, into the hands of users, and as applications are downsized to smaller platforms.

- The percentage of industry-specific software for minis will also decline, but not to the same degree. There is a continuing need for mini-based systems, particularly for local government entities.

- Software for mainframes is shifting from application-specific to general-ized multi-application data bases. Mainframes will become repositories of data that users will access to meet specific needs.

C

Industry Sector Analysis

There are a number of factors causing the state and local government market to grow. However, other equally important factors are inhibiting more use of technology to meet growing demands. The driving forces and inhibiting factors are discussed below.

1. Driving Forces

The need for new or expanded programs and services is the foremost driving force in this sector, as shown in Exhibit IV-4.

EXHIBIT IV-4

Driving Forces
State and Local Government Market Sector

- Increasing service demands
- Information systems reliance
- Technology availability
- Budget pressures
- Increasing responsibility

States and cities have indicated that new on-line systems are required to provide faster and better response to human resources, social service, traffic, financial control, tax, assessing, law enforcement, and other requirements.

The fact that so many of the commitments being made in this sector require the use of information systems capabilities indicates that the increased reliance on IS is another driving force in this sector. Officials and executives in the sector are demanding more ability to make inquiries, manipulate stored data, and communicate among offices.

The expanding availability of powerful technology is one reason the knowledge of information services vendors is being sought. The use of more recent technology—such as networks, relational data base management, voice response, CD ROM, supercomputers, and CASE—is viewed

as important for meeting service commitments. However, organizations in this sector generally have not had the budgets or opportunities to learn about new technology. This has resulted in the greater use of third-party professional services/systems integration companies to implement these technologies.

Budget pressures also remain a driving force in the sector but can inhibit or complicate the growth of IS.

• IS executives note that their inability to pay competitive salaries results in a need to continually train new staff in technologies such as DBMS and 4GL. These employees often use the training to find better paying jobs in the private sector within a few years, because tightened budgets do not allow for higher salaries.

• The pressure of large backlogs of maintenance and development work is also a result of budget problems.

The budget pressures, backlogs, and demands in this sector have resulted in the support of activities by a group of offices that can be run separately from IS departments. Also, advisory groups have exerted influence in many offices in this sector. Coupled with budget pressures has been a steady shift of federal programs to state control and funding. The shift necessitates investment in new systems and technologies.

2. Inhibiting Factors

As can be seen in Exhibit IV-5, the inhibiting factors are predominantly management issues. In many state and local governments, issues of technology alternatives and assessments are of less importance. Numerous hurdles must be overcome before technological solutions can be applied.

• Funding for investment in technological solutions is a major, and growing, problem. With increased pressure to reduce overhead (bureaucracy) and channel more funds directly to the public, often only limited amounts can be applied to technology.

• Hiring and retaining qualified personnel, particularly in local governments, is a major problem. Salary levels are low compared even to state governments. Personnel that receive training are inclined to leave for the private sector at the first opportunity. This necessitates emphasis on packaged solutions that can be supported with little internal staff.

• For both state and local organizations, there is great sensitivity to the political impact of any solution. An electronic imaging system can significantly reduce the cost of storing and retrieving documents. The same system can be seen as having high risk for release of confidential information.

EXHIBIT IV-5

Inhibiting Factors
State and Local Government Market Sector

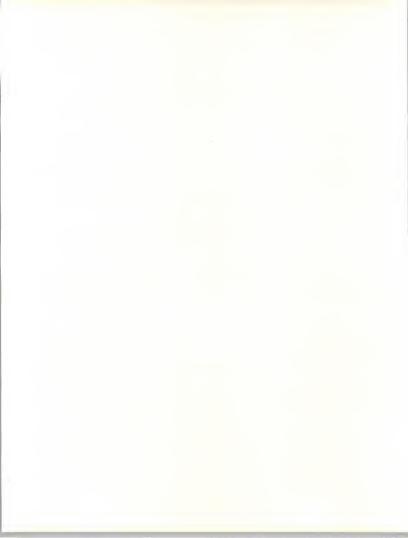- Available funding

- Qualified personnel

- Political impact

- Executive commitment

- Lack of planning

- The development of technology solutions is significantly impacted by a lack of executive commitment. State and local executives are frequently unable to clearly identify benefits associated with technology, particularly as it applies to the public sector.

- In organizations where the benefits are recognized, a lack of planning frequently precludes the most effective use of technological solutions.

In order to control costs and ensure the success of projects, vendors must try to assess what roles they will take and what aid or training will be required as projects proceed.

The opportunities and challenges of this sector require that vendors carefully plan their strategies and offerings.

- Some vendors have spent considerable time in the sector in developing good application products or in providing services in one professional service segment, but have not responded to the larger opportunities emerging in professional services or systems integration.

- There are also rapidly growing needs for vendors to aid with networks, connectivity, data management, office automation, and upgrading hardware systems—needs which some vendors seem to be neglecting.

Overall, the market will remain strong. Short-term expenditures are expected to continue at a somewhat reduced level in response to the federal deficit and economic climate. However, with public service needs growing, any decline should be short term.

V

Competitive Environment

V

Competitive Environment

The primary purpose of this chapter is to highlight trends in the use of vendor services and to identify several vendors that represent key trends in the provision of information services to state and local governments.

A

Vendor Characteristics and Trends

Faced with increasing demands for service, a shortage of personnel, and declining availability of funds, state and local governments continue to rely heavily on information services vendors to meet their needs.

While emphasis continues to be placed on providing basic services (hardware- and application-specific software), increasing attention is being placed on the creative use of technology and the integration of services.

During the five-year period of this forecast, emphasis will continue to shift from the provision of specific products and services to the use of vendors that can integrate a variety of products. The purpose will be to provide increasingly complex, integrated solutions within state and local government entities.

Recent events also indicate that technology solutions, traditionally more common in the private sector, will become more accepted in state and local governments. Increasing attention is being given to point-of-transaction (POS, ATM) systems that can deliver services directly to the public, streamlining and bypassing labor-intensive procedures currently in use. Increasing attention is also being given to technologies that can reduce paperwork, such as electronic imaging systems.

To meet the need for new delivery methods and integrated, complex systems, state and local governments will seek vendors that are able to develop complex systems and manage large, complex projects that integrate a variety of technologies across organizational lines.

B

Leading and Emerging Vendors

Unlike many industry sectors, thousands of vendors pursue opportunities in the state and local government sector. Much of the work done for local governments and municipalities is performed by local vendors: many have specific technical expertise, many provide quality service, but some provide service that is less than high quality. Few have the level of skill necessary to integrate complex systems, manage large, complex projects, or provide processing services.

Exhibit V-1 provides a summary of the leading vendors in the state and local government sector. Although many vendors derive a healthy amount of revenue from this sector, the total revenue from all leaders in the sector does not exceed an estimated 15-20% of the spending for services. The other 80-85% is divided among the numerous small, local providers. In addition, revenues for the major providers are derived primarily from state governments. The majority of revenues from local governments goes to local providers.

EXHIBIT V-1

Leading Vendors

- EDS
- IBM
- CSC
- Consultec
- AMS
- SHL Systemhouse
- D & B Software Services
- Business Records Corp.
- Telos

Organizations such as Filenet and Lockheed are emerging vendors that are becoming more prominent due to the demand for technologies such as electronic imaging. Organizations that provide point-of-transaction systems will become very important over the next several years.

Vendors that can provide design and consulting services are, and will continue to be, important. However, state and local governments are increasingly turning to vendors that can provide integrated solutions. Vendors that understand requirements and can integrate several technologies to meet specific needs will be increasingly favored over vendors that have in-depth knowledge of a single technology.

Vendors with specific, technically oriented skills will achieve greater success in this sector by establishing strong alliances with large, well established vendors that can integrate products and manage large projects.

Niche vendors enjoying a significant portion of this sector include: Wang, for office automation products and services; and AT&T, MCI, and Boeing Computer Services for network implementation.

Other specialists include Ernst & Young, Coopers and Lybrand, and Andersen Consulting. These companies have secured strong market presence in this sector, based on their track records as software developers, by providing professional and integration services.

For local government services, there are numerous small, local vendors that provide high-quality specialty services.

The following are summary profiles of leading vendors in the state and local government sector.

C

Vendor Profiles

1. Electronic Data Systems (EDS)

Formed in 1960, EDS provides systems development and management services to a wide range of industries. Though the percentage has declined, EDS derives approximately half of its revenues from General Motors. Of its total operating revenues of $6.1 billion in 1989, EDS derived an estimated $92 million (1.5%) from state and local government business. Though it is a small percentage of EDS's business, revenue from this sector places it among the leaders of this sector.

EDS is reported to be the nation's largest processor of Medicaid claims, processing over two-thirds of the country's claims. EDS's position in claims processing is expected to remain dominant for some time. EDS

continues to renew contracts with existing clients such as the states of Arkansas, California, Delaware, North Carolina, Texas, and Wyoming.

Although EDS's track record in systems operations is important to winning new state business, its experience in multiple industries is beginning to be of significant benefit.

Taking a page from the financial services industry, EDS has developed an Electronic Benefits Transfer (EBT) capability, using ATMs and ATM-type cards to dispense payments for food stamps. The system significantly reduces paper handling (of food stamps) and permits improved control by gathering statistics for payment analysis. In another program for Massachusetts, Medicaid eligibility can also be determined through the use of an ATM-type card.

Not too long ago, the thought of leveraging financial services industry experience to win state and local government contracts would have been unheard of. But technology and state needs have changed. Technologies such as EDI, point-of-sale systems, automated teller machines, and others are becoming universal delivery mechanisms.

EDS's ability to successfully leverage experience from one industry to another is indicative of the need for leading vendors to have a broad experience base and be able to apply processes and technologies across industries.

With emphasis on systems integration, and with the needs of state and local governments to improve and integrate their systems, EDS can be expected to be a key contributor to the growth of information services in the sector.

2. American Management Systems (AMS)

Founded in 1970, AMS provides professional services, applications software, and processing and micrographic services. Since 1982, AMS's marketing has focused primarily on financial service firms, federal government, state and local governments, colleges and universities, and energy and telecommunications companies.

Within the state and local government sector, AMS provides applications software products and professional services. AMS's key competitors within the state and local government industry include Peat Marwick, D & B Software Services, and numerous small, independent firms. Competition from smaller firms is greater at the local government levels.

AMS provides a number of products to the state and local government industry, including financial management systems, an on-line statistical

information system, computer-assisted collection systems, and human resources systems.

AMS has included the top 350 state and local governments among its key target markets. In 1989, it derived an estimated $45 million in revenue from the state and local government sector. (It derives an estimated 35% from the federal sector.)

3. SHL Systemhouse (SHL)

A Canadian company formed in 1974, SHL has become an aggressive provider of services, primarily systems integration, to U.S. federal and commercial clients, including state and local governments.

SHL's 1989 revenues exceeded $630 million, 48% of which was derived from the U.S. In the U.S., a growing number of contracts relate to state and local business. Though three of SHL's six U.S. offices are in California, its activities cover a wide area of the country.

SHL's systems integration contracts include student aid and court case tracking systems for the state of California, a welfare eligibility system for Hawaii, and a POS system for liquor sales in Hawaii. These contracts are valued at more than $15 million.

In addition, SHL has participated in contracts related to welfare eligibility systems in Arizona, Idaho, Utah, Alaska, Kansas, Wyoming, South Carolina, Montana, and Washington. Recent announcements suggest that SHL will continue to increase its presence in the state and local sector.

A notable ingredient in SHL's success in the state and local sector has been a highly structured and strict development methodology, coupled with the adaptation of existing systems to meet a specific need.

4. Computer Sciences Corporation (CSC)

Computer Sciences Corporation is considered one of the largest independent professional services companies in the industry. Serving government and commercial clients, CSC provides management consulting in information technology, requirements analysis, software development, systems engineering and integration, turnkey computer communications systems, and facility management services.

The company also provides industry-specific proprietary products and services for credit reporting, claims processing, health maintenance organizations, and income tax preparation.

CSC is able to provide a wide range of technology-related products and services. It derived an estimated $40 million (2%) of its 1990 revenues

from state and local government. CSC's revenues from the state and local government sector have steadily declined, suggesting that CSC is placing less emphasis on this sector.

Of the services provided to the state and local government sector, $31 million was derived from services related to CSC's Health and Insurance Systems. An additional $9.3 million (23%) was derived from the Systems and Consulting Groups, which provide services related to integrated systems, systems sciences, network systems, and applied technology.

CSC competes with a wide variety of organizations such as TRW, Hughes Aircraft, IBM, Unisys, PRC, EDS, and Blue Cross/Blue Shield.

CSC has indicated that its interests are primarily in the private sector. This emphasis has contributed to a decrease in revenues from the state and local sector. Based on its performance over the past couple of years, INPUT expects CSC to continue to seek opportunities, but become less of a competitive threat over the next several years.

VI

Conclusions and Recommendations

VI

Conclusions and Recommendations

A
Conclusions

Compared to the private sector, state and local government organizations are more likely to seek the assistance of information systems vendors to address the growing number of complex solutions required. Key areas of opportunity are shown in Exhibit VI-1.

EXHIBIT VI-1

Key Opportunities

- Local-/wide-area networking

- RDBMS software

- Financial control software

- Systems consulting

- Systems integration

- Electronic imaging systems

- Geographic information systems

- Local-area networking capability is a growing necessity within state and local governments. Departments are following private sector trends to acquire departmental computing (PC-based) software, frequently with little regard for connecting local networks to share data. Local-to-wide-

area network connectivity is needed in state governments to make use of the growing number of statewide (integrated) networks.

- Relational data base software is receiving increasing attention in local governments. While state governments have requirements for traditional and relational data base software for large systems, local governments are focusing on data base software for PCs and workstations.

- Of growing importance over the next several years will be data base systems that permit data to be shared between departments and agencies. Integrated (interdepartment) systems are necessary for electronic benefits delivery to be successful.

- Financial control systems that allow the consolidation and analysis of data across organizations is in growing demand. Financial control and analysis is needed to understand how best to apply dwindling funds and to determine where expenses can be reduced.

- Assistance in developing new or modifying existing systems will continue to be a key requirement for state governments. The need exists, to a lesser extent, in local governments, where there are fewer large systems. In state governments, numerous older systems need to be modified and updated. In addition, changing legislation necessitates updates. State governments frequently do not have the staff to deal with major changes.

- Systems integration is a growing need. With the growing inter-relationship of services, there is a need to ensure that data is available across multiple departments and systems. Many older systems cannot be adapted to meet the needs, and large, integrated data base systems are only beginning to emerge.

- Electronic imaging is just now becoming a significant technology in state and local governments. While many local governments cannot afford the significant investments, several state governments have already begun to use electronic imaging as a means of reducing staff and gaining greater control of records.

- One of the hottest technologies is geographic information systems. Providing ability to integrate and visually represent the relationship of demographics to geography is proving to be a highly valuable tool for increasing analytical ability without the need to increase staffing.
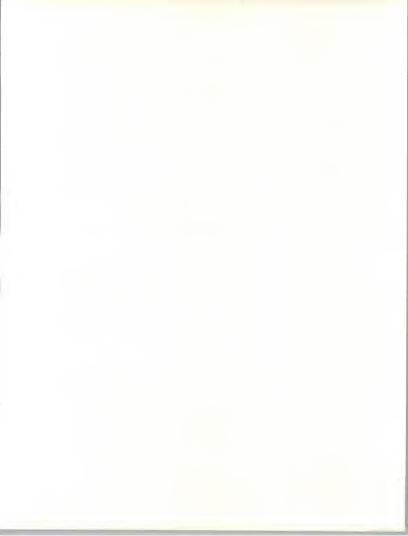
B

Recommendations

There are a number of ways to realize greater success in the state and local government market. Key recommendations are shown in Exhibit VI-2.
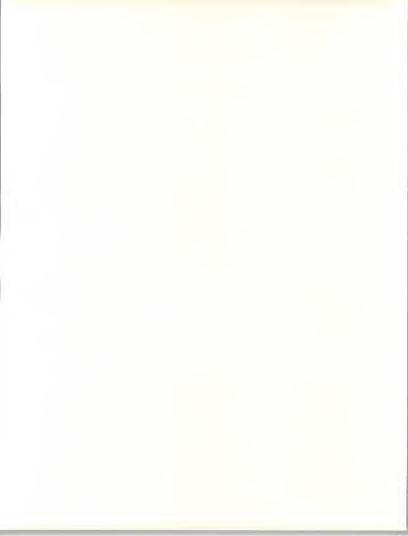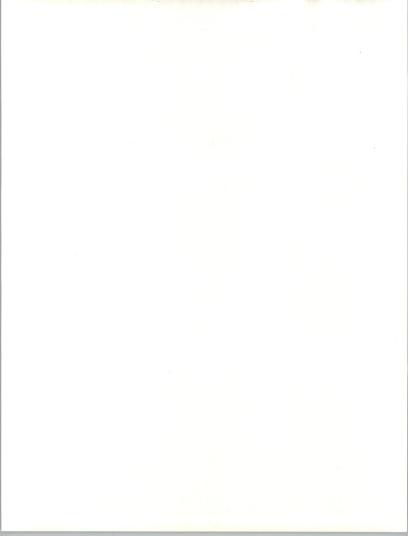
EXHIBIT VI-2

Recommendations

- Increase requirements awareness

- Use consulting approach

- Build platforms

- Replicate systems

- Many vendors do not devote sufficient effort to monitoring the state and local government market. While much local government spending goes to local vendors, state governments increasingly look to large full-service providers that have an understanding of complex technologies.

- Vendors new to the state market should approach the market through consulting. This establishes credibility and aids in developing an awareness of the IS problems of state governments. States will award follow-on contracts to vendors that have demonstrated knowledge. This is somewhat in contrast with the federal market, where each project may be individually bid. Many states follow the same general practice, but are somewhat more flexible.

- State and local governments need a baseline infrastructure from which they can develop systems over time. Many systems have evolved individually, and are not able to meet current and future requirements. New systems should be developed within an overall architectural plan. Therefore, vendors with strong information systems planning credentials should have an edge in many contract bids.

- Vendors should ensure that applications developed for one state are modular and expandable so they can be used in other states. Many state and local government requirements are similar. Efforts to develop one product can be leveraged across several states.

With federal-to-state and state-to-local assistance declining, state and local governments will increasingly need assistance to improve their operating performance and deliver more services for less cost. Expanded use of information services is, in many cases, the only viable means of meeting the variety of frequently conflicting requirements.
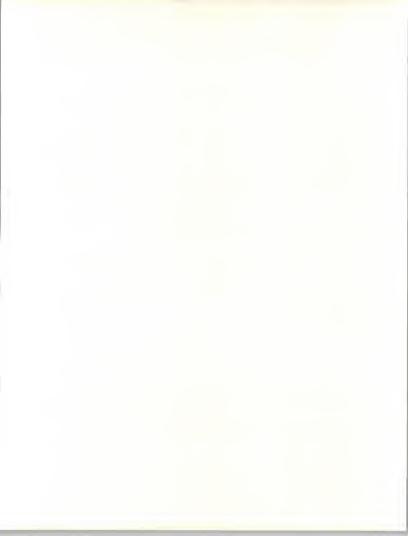
Appendixes

A

Appendix: Definitions

A

Definitions

No industry-specific definitions are used in this report.

See the separate publication, INPUT's *Definition of Terms* for general definitions of industry structure and delivery modes used throughout INPUT reports.

B

Appendix: State and Local Government Sector—Forecast Data Base and Reconciliation

A

Forecast Data Base

Exhibit B-1 presents the 1991-1996 forecast for the state and local government sector.

EXHIBIT B-1

State and Local Government Sector
User Expenditure Forecast by Delivery Mode, 1991-1996
($ Millions)

Delivery Modes	1990 ($)	Growth 90-91 (%)	1991 ($)	1992 ($)	1993 ($)	1994 ($)	1995 ($)	1996 ($)	CAGR 91-96 (%)
Sector Total	4,406	17	5,021	5,804	6,728	7,803	9,036	10,548	16
Processing Services	257	12	288	322	361	404	453	507	12
- Transaction Processing	257	12	288	322	361	404	453	507	12
Turnkey Systems	150	11	167	186	206	230	255	284	11
Applications Software	127	13	143	163	187	216	252	293	15
- Mainframe	51	7	55	58	62	67	72	77	7
- Minicomputer	28	12	31	35	39	44	50	57	13
- Workstation/PC	48	18	57	70	86	105	130	159	23
Systems Operations	916	15	1,052	1,241	1,471	1,727	2,017	2,358	18
Systems Integration	554	15	639	762	923	1,113	1,344	1,639	21
Professional Services	2,326	13	2,638	3,017	3,449	3,945	4,514	5,167	14
Network Services	76	21	92	111	135	164	201	248	22
- Electronic Info. Svcs.	37	19	44	50	58	67	78	90	15
- Network Applications	39	23	48	61	77	97	123	158	27

B

Forecast Reconciliation

Exhibit B-2 presents the forecast reconciliation for the state and local government sector.

No significant differences exist between the 1990 and 1991 INPUT forecasts for the state and local government sector. Growth in 1990 was somewhat less than forecast and the overall forecast is for slightly slower growth in the next few years.

EXHIBIT B-2

State and Local Government Sector 1991 MAP Data Base Reconciliation ($ Millions)										
	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
Delivery Modes	1990 Report (Fcst) ($)	1991 Report (Actual) ($)	Variance from 1990 Report ($)	Variance from 1990 Report (%)	1990 Report (Fcst) ($)	1991 Report (Fcst) ($)	Variance from 1990 Report ($)	Variance from 1990 Report (%)		
Total State and Local Government Sector	4,511	4,406	-105	-3	9,947	9,036	-911	-9	17	16
Processing Services - Transaction Processing	255 255	257 257	2 2	1 1	450 450	453 453	3 3	1 1	12 12	12 12
Turnkey Systems	152	150	-2	-1	255	255	0	-	11	11
Applications Software	131	127	-4	-3	268	252	-16	-6	15	15
Systems Operations	956	916	-40	-4	2,495	2,017	-478	-19	21	18
Systems Integration	576	554	-22	-4	1,641	1,344	-297	-18	23	21
Professional Services	2,362	2,326	-36	-2	4,625	4,514	-111	-2	14	14
Network Services	77	76	-1	-1	212	201	-11	-5	22	22

About INPUT

INPUT provides planning information, analysis, and recommendations for the information technology industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

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INPUT OFFICES

North America

San Francisco
1280 Villa Street
Mountain View, CA 94041-1194
Tel. (415) 961-3300   Fax (415) 961-3966

New York
Atrium at Glenpointe
400 Frank W. Burr Blvd.
Teaneck, NJ 07666
Tel. (201) 801-0050   Fax (201) 801-0441

Washington, D.C.
INPUT, INC.
1953 Gallows Road, Suite 560
Vienna, VA 22182
Tel. (703) 847-6870   Fax (703) 847-6872

International

London
INPUT LTD.
Piccadilly House
33/37 Regent Street
London SW1Y 4NF, England
Tel. (071) 493-9335 Fax (071) 629-0179

Paris
INPUT SARL
24, avenue du Recteur Poincaré
75016 Paris, France
Tel. (33-1) 46 47 65 65 Fax (33-1) 46 47 69 50

Frankfurt
INPUT LTD.
Sudetenstrasse 9
D-6306 Langgöns-Niederkleen, Germany
Tel. (0) 6447-7229 Fax (0) 6447-7327

Tokyo
INPUT KK
Saida Building, 4-6
Kanda Sakuma-cho, Chiyoda-ku
Tokyo 101, Japan
Tel. (03) 3864-0531 Fax (03) 3864-4114